

Association between Limited English Proficiency and Regional Anesthesia Utilization for Total Joint Arthroplasty: A Retrospective Single Institution Study

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Introduction

- 25.7 million people ages five and older living in the United States had Limited-English Proficiency (LEP).¹
- Data has demonstrated that LEP may affect the utilization of regional anesthesia (RA).²
- There is a paucity of data at centers where RA is the standard of care.^{3,4}
- At our institution, total knee replacement (TKR) and total hip replacement (THR) procedures are typically performed using RA.
- We hypothesized there would be no significant differences in RA utilization between English speakers and LEP patients.

Methods

- Primary outcome is RA (neuraxial/peripheral nerve block) utilization for English versus LEP patients.
- Principal variables were primary language, use of translation services and translation modality.
- Additional variables include patient age, sex, race, ethnicity, insurance type, procedure type, ASA class, BMI, surgery patient class, and surgical year.
- Inclusion criteria were patients aged greater than 18 presenting for primary, elective, unilateral THR or TKR between 01/01/2016 and 12/31/2023.
- Exclusion criteria were age less than 18, revision surgery, bilateral surgery, prior spine surgery, non-elective/urgent surgery, trauma cases (both acute and non-acute), and active infection/sepsis.

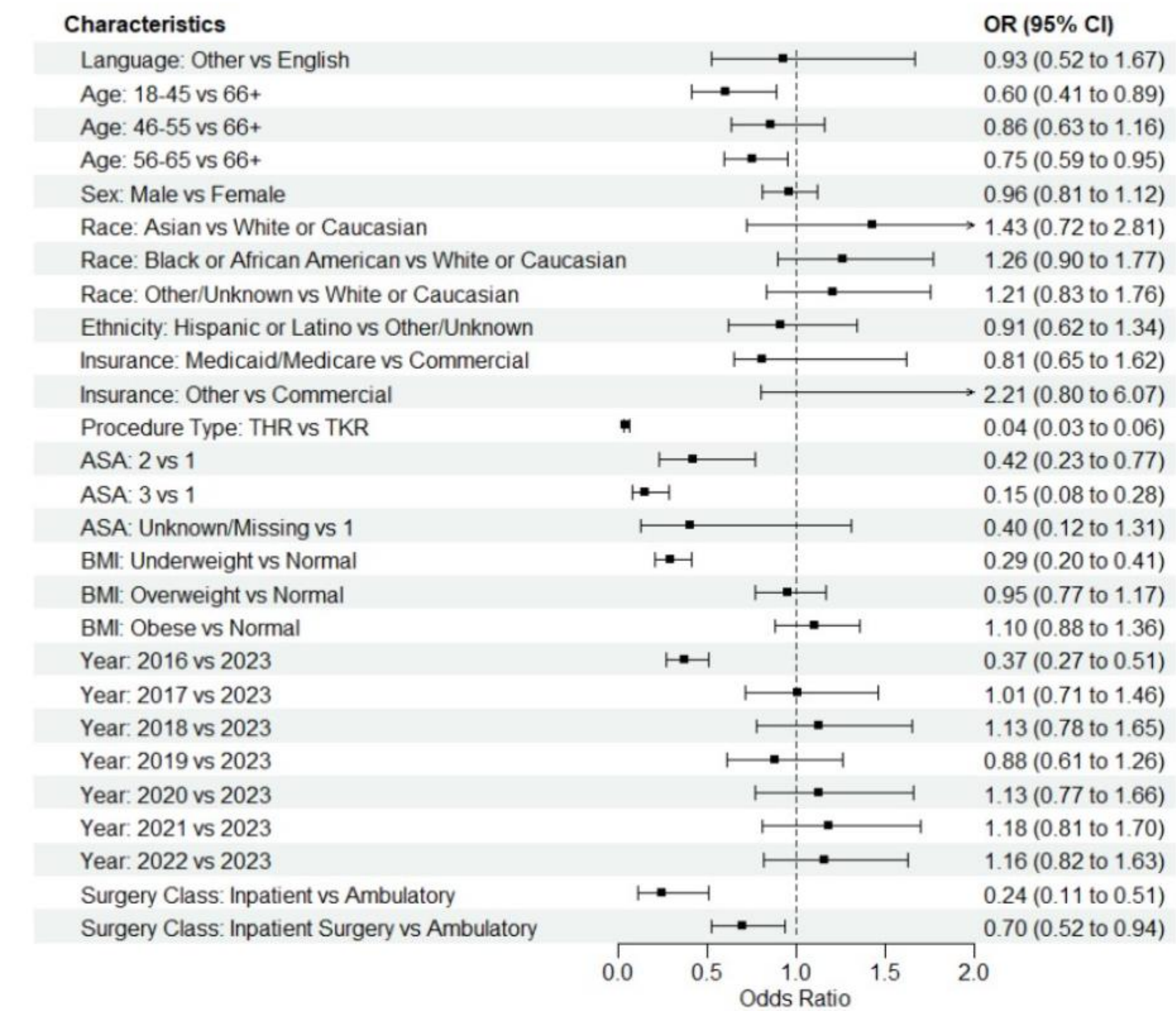
Results

- 58,918 patients undergoing a TKR/THR from 2016 to 2023 with 58,211(98.8%) underwent their procedure with RA
- English speakers accounted for 57,520 (97.6%).
- When comparing RA use between English speaking and LEP patients, we found no significant difference in RA utilization based on preferred language.
- After adjustment, there was no significant difference in RA use among language (OR: 0.93 [95% CI 0.52-1.67, p=0.810]).
- We found increased odds of RA use with age, sex (female), race (Asian), BMI, insurance (public), and year of surgery, with decreased odds for higher ASA class and inpatient disposition. (Figure 1)
- Using propensity score matching, we matched 1010 patients. There was no significant difference in RA use among language using a logistic regression model (OR: 1.23 [95% CI 0.51-2.97, p=0.6537]).

Discussion

- Recent data demonstrates non-English, non-Spanish speakers are less likely to receive RA than English speakers for primary joint arthroplasty.²
- In our study, we found no disparity in RA utilization based on English proficiency.
- The difference in results between our studies is likely contingent on differences in patient population, pre-operative encounters, and an interplay with surgical colleagues.
- Limitations of our study include its retrospective nature, single-institution data, and variability in provider bias.

Figure 1. Odds ratio (95% CIs) from a multilevel logistic regression model comparing the odds between preferred language, age, gender, race/ethnicity, insurance type, ASA, BMI, year of surgery, surgery class with regional anesthesia utilization



An odds ratio over 1 indicates a higher likelihood of receiving regional anesthesia, while an odds ratio under 1 suggests a lower likelihood. Confidence intervals that cross 1 indicate the differences are not statistically significant.

References

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